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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,421	02/18/2004	Colleen Legzdins	2269.029US1	3051
21186	7590	09/25/2007		
SCHWEGMAN, LUNDBERG & WOESSNER, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402			EXAMINER TALBOT, BRIAN K	
			ART UNIT 1762	PAPER NUMBER
			MAIL DATE 09/25/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/781,421

Applicant(s)

LEGZDINS ET AL.

Examiner

Brian K. Talbot

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on oral election on 6/14/07.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 20 and 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

1. Claims 1-21 remain in the application.

Election/Restrictions

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-19, drawn to method of making electrode, classified in class 427, subclass 58+.
 - II. Claims 20-21, drawn to an electrode, classified in class 428, subclass 1+.

The inventions are distinct, each from the other because of the following reasons:

3. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process other than coating such as by laminating.

4. Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

5. During a telephone conversation with Ben Armatig on 6/14/07 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-19. Affirmation of this election must be made by applicant in replying to this Office action. Claims 20-21 have been

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withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

7. Hence, claims 1-21 remain in the application with claims 20-21 being directed toward a non-elected invention. Non-elected claims 20-21 should be canceled in response to this Office Action.

Claim Rejections - 35 USC § 103

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6,8,10-14 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knights et al. (2004/0157110) in combination El-Sayed (6,090,858) in combination with Womelsdorf (2002/0149002).

Knights et al. (2004/0157110) teaches a supported catalyst for the anode of a voltage reversal tolerant fuel cell. The solid polymer fuels cell series can result in voltage reversals. In order to pass current, reactions other than fuel oxidation may take place at the anode (abstract). Electrodes for MEA can be prepared by first applying a sublayer if desired to a suitable substrate and then applying the catalyst layer onto the sublayer. These layers can be applied in the form of slurries or inks which contain particulates and dissolved solids mixed in a suitable liquid carrier. The liquid carrier is evaporated off to leave a layer of particulates and dispersed solids ([0011]). The fuel cell can be connected to a load ([0012]).

Knights et al. (2004/0157110) fails to teach the particular claimed nano-particle dispersion.

El-Sayed (6,090,858) discloses a method for the synthesis of colloidal metal nanoparticles where in ratio of concentration of a capping material to that of the metal ions in a solvent is manipulated to produce the desired nanoparticles (column 1, lines 66-67; column 2,

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lines 1-4). Degree of polymerization and concentration of the stabilizing polymer i.e. capping material used to produce colloidal particles influence the size distribution, stability of these colloidal particles. For example, higher ratio of capping material to metal component produces smaller gold particles (column 1, lines 47-53). The ratio of capping material to metal ions is 1:1, 2.5:1 and 5:1 (column 3, lines 17-20) and reads on the ratio of charged soluble polymer to metal component of claim 1. In the preferred embodiment, water is added to make 8×10^5 M solution of the K_2PtCl_4 salt. To this is added 0.1 M sodium polyacrylate as the capping material (column 3, lines 41-51) and read on weight percentages of charged soluble polymer and metal component of claim 1. The concentration of K_2PtCl_4 and sodium polyacrylate solutions is low and reads on a large weight percentage of carrier such as water of claim 1. The synthesis of colloidal particles includes providing a solution of K_2PtCl_4 in water by maintaining the vessel temperature at 25°C to which is added 0.1 M solution of sodium polyacrylate (abstract) and reads on the room temperature of claim 13. The average size of these nanoparticles range from 0.5 to 18 nm (column 5, lines 1-5). The nanoparticles are prepared by the standard method whereby a solution of a metal salt and water is prepared in a reaction vessel to which a capping material such as sodium polyacrylate, sodium monoacrylate is added (column 2, lines 8-12). The sodium polyacrylate reads on 100% substitution of the claim 1.

El-Sayed (6,090,858) fails to teach or is silent with respect to molecular weight of the polymer being less than 25,000 amu.

Womelsdorf (2002/0149002) teaches an aqueous dispersion of Zn oxide nanoparticles consisting of a stabilizer such as sodium polyacrylate which has a mean molecular weight of

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5100 (paragraph 0022) and reads on the molecular weight of charged soluble polymer of claims 1 and 3.

Therefore, it would have been obvious to one skilled in the art at the time invention was made to use sodium polyacrylate with a mean molecular weight of 5100 in the colloidal nanoparticle dispersion of El-Sayed (6,090,858) with the expectation of achieving similar success and to have utilized the nanoparticle dispersion as a catalyst and/or electrode dispersion in Knights et al. (2004/0157110) process.

Regarding claim 6, the substrate is a porous material. Knights et al. (2004/0157110) teaches the catalyst and/or electrode being applied to a porous substrate ([0043]).

Claims 7,9,15-17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knights et al. (2004/0157110) in combination El-Sayed (6,090,858) in combination with Womelsdorf (2002/0149002) in combination with Asakawa et al (2003/0222048).

Knights et al. (2004/0157110) in combination El-Sayed (6,090,858) in combination with Womelsdorf (2002/0149002) fail to recite forming features on the substrate on which the electrode is formed.

Asakawa et al (2003/0222048) discloses coating a micro-structured object having features formed thereon, wherein each of the features have a dimension of between 50 nm and 200 microns (para 0001).

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It would have been obvious to one with ordinary skill in the art to include coating a micro-structured object having features formed thereon, wherein each of the features have a dimension of between 50 nm and 200 microns because Asakawa et al (2003/0222048) teaches need in the electronics art for micro-structured objects (para 0002).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian K. Talbot whose telephone number is (571) 272-1428. The examiner can normally be reached on Monday-Friday 8AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

 9/18/07

Brian K Talbot
Primary Examiner
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BKT